4. Please insert the section title beginning at page 3, line 18, as follows:

--DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS--

B2

5. Please replace paragraph beginning at page 3, line 30, with the following rewritten paragraph:

--"Normal" density fabrics typically are 50x50 (i.e., 50 warp yarns to the inch by 50 fill yarns to the inch) to 70x70, for example, at 200 denier. Such fabrics have little resistance to penetration, even when used in multiple layers. In accordance with the present invention, however, a protective fabric having extremely high penetration resistance is formed by layering a plurality of densely woven fabric sheets of construction ranging from 90x88 to 130x86 at 200x200 denier, and from 100x68 to 130x65 at 200x400 denier. Fabrics at these levels of construction are known as "densely woven", "tightly woven" or "overconstructed", and are known but uncommon. They have heretofore been used in sail cloth but not, to my knowledge, in protective clothing. For use in the present invention, the fabrics are preferably woven from a high-modulus, multi-filament material such as a standard type 29 Kevlar material. The resultant protective fabrics are characterized by high penetration resistance, good drapability, and relatively low cost per unit of resistance.--

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6. Please replace paragraph beginning at page 6, line 6, with the following rewritten paragraph:

--Another indicator of the geometric structure of the fabric of the present invention is the amount of overlap or "cover" between adjacent warp yarns as measured at the fill crossing. Referring to Fig. 2B, the cover may be determined as the sums of each of the widths w of the yarns in a given cross section, divided by the length, "l", of the cross section. Referring now to Fig. 3, the cover of a typical normal fabric (70x70, 200x200) as well as that of several densely woven yarns in accordance with the present invention is shown. As seen in Fig. 3, the cover 30 of the normal fabric is of the order of approximately 115%, with 100% indicating essentially no overlap, on average. In contrast, the cover of densely woven fabrics in accordance with the present invention is significantly higher. Thus, the cover 32 of a 90x88 (200x200) fabric is of the order of 130%. The cover 36 of a 110x67 (200x400) fabric is seen to be just slightly in excess of

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the 90x88 fabric, while the cover 34 of a 131-65 (200x400) fabric is even higher, approximately 140%.--

7. Please replace paragraph beginning at page 6, line 18, with the following rewritten paragraph:

--Still another measure of the structure of the fabric of the present invention is the ratio of its "crimp" in the warp direction verses its crimp in the fill direction. The crimp in a given direction (warp or fill) is defined as the length of a given section of yarn along that direction when woven divided by the length of the same yarn when freed from its woven state in the section. Fig. 4 shows the amount of crimp for different fabrics, namely, a 70x70 (200x200) (indicated as element 40), a 90x88 (200x200) (element 42), a 110x67 (200x400) (element 44), and a 131x65 (200x400) (element 46) fabric. The crimp along both the warp (e.g., 40) and fill (e.g., 40b) directions for each of these fabrics is given. It is readily seen that the crimp in the normal fabric (element 40) is significantly less than that of the densely woven fabrics used in the present invention. (42, 44, 46).--

8. Please replace paragraph beginning at page 11, line 30, with the following rewritten paragraph:

--The tightly woven substrate of the present invention offers penetration resistance both to circular and cutting type penetrators. Based on tests, the substrate of the invention offers the following advantages. 1) The substrate provides resistance to circular penetrators such as ice pics, awls and homemade prison weapons. 2) The substrate provides resistance to cutting edge penetrators including UK test knives, German Othello test daggers and U.S. Russell boning knives. 3) The substrate provides resistance to small diameter penetrators like[s] thorns and sharp sticks. 4) The substrate provides resistance to puncture by small cutting penetrators like hypodermic needles. 5) The substrate provides cut and slash resistance approximately 19 times greater than that offered by ballistic fabrics. 6) The substrate provides reduction of depth of trauma resulting from ballistic type impacts. Used in combination with and placed behind typical ballistic materials, the substrate of the present invention reduces measured backside trauma depth by a factor of 2 to 3 times. This allows for an attractive combination of ballistic performance where NIJ ballistic performance of a level 2a or 3 can be achieved with layer counts similar to

current ballistic vest-only systems. The ballistic performance was maintained by substituting 1/3 to1/2 of the ballistic layers with the substrate of the present invention. Dramatic improvements in stab and puncture resistance were achieved. The depth of backside trauma is much improved over the all-ballistic product. 7) The substrate provides reduction of blunt trauma resulting from blows from striking club-like weapons and thrown objects such a sharp stones. As above, the substrate of the present invention provided significant reduction in the depth of the affected zone. The high-bias stiffness of the tightly woven substrate of the present invention prevents the material from forming deep concave indents. The substrate of the invention strongly resists being bent into compound curves having small radii. In order for a striking blow or a rock to deeply indent the substrate, the fabric must conform to this concave shape. The substrate of the invention, with its very high off-thread line and bias stiffness, lacks the drape and elongation necessary for the deep indenting. The substrate of the invention spreads out the point of contact and distributes the impact forces over a large area of tissue. Based on the use of Roma plastilina as a tissue stimulant, 1-4 layers of the substrate of the invention can reduce the depth of trauma by a factor of 5-10 times. 8) The substrate of the invention provides abrasion resistance for sliding wear situations in industrial protective apparel. Gloves, gauntlets, aprons and chaps all require a combination of cut and abrasion resistance. The substrate of the present invention offers excellent cut and abrasion resistance to suit the industrial protective apparel application.--

IN THE CLAIMS:

Please amend claim 1 as follows:

1. (Amended) A protective fabric substrate for protection against puncture, penetration and/or ballistics comprising:

a plurality of warp yarns densely interwoven with a plurality of fill yarns; wherein the denier of the fill yarn is greater than the denier of the warp yarn.

Please amend claim 3 as follows:

3. (Amended) The protective fabric substrate as claimed in claim 1 wherein the denier of the fill yarn is at least 1.5 times greater than the denier of the warp yarn.